



ENERT/S

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Technical due diligence for Simons Solar Project (7.04 MW_{DC}/5.00 MW_{AC})

Project located in Ahoskie, North Carolina

July 19, 2016

FINAL



7. PROJECT DESIGN AND ENGINEERING REVIEW

Enertis has received a permit level drawing package produced by Entropy Solar Integrators dated October 27th, 2015. The package includes electrical details, wiring schedules, medium voltage details, grounding details, construction plans, and racking specifications. The drawings generally comply with common engineering practice, only one discrepancy was found and is discussed below in Table 7.1.

| Sheet Number / Name | Issues and IE Comments |
|---------------------------|---|
| E1 / OVERALL SITE PLAN | <ul style="list-style-type: none"> Combiner Box Rating: Keyed Note B calls out <i>Solar Bos CSKT320-12-30-4</i> combiner boxes which have a disconnect rating of 320 A. The IE has confirmed with the manufacturer that this is a “continuous duty” or 100% rating. This implies that the combiner boxes actual maximum current rating is 400 A (after applying a 1.25 factor). This is an appropriate size as the fuses between the combiner box and inverter have been standardized to 350 A. |
| E17 / EQUIPMENT CUTSHEETS | <ul style="list-style-type: none"> Combiner Box: The datasheet shown calls out a <i>Solar BOS CSKT400-36-15-4XF</i> combiner box while photo documentation shows that <i>CSKT320-12-30-N4</i> combiner boxes have been installed on site. The IE recommends updating the drawing to include the correct combiner box datasheet. |

Table 7.1. Design issue summary and IE comments.

The Plant’s low voltage DC system utilizes 22,344 Jinko Solar JKM-315P 315 W modules. The modules are mounted on a fixed tilt racking system at a 20° tilt. The Plant will be divided into three sub-systems which are summarized in Table 6.2 below.

| Simons Farm Sub-System Summary | | | |
|--------------------------------|-------------------|-------------------|--|
| Inverter | Number of Strings | Number of Modules | DC/AC Power |
| 1 – 6 | 196 | 3,724 | 1.173 MW _{DC} / 0.825 MW _{AC} |
| Total | 1,176 | 22,344 | 7.038 MW_{DC} / 4.950 MW_{AC} |

Table 7.2. Simons Farm sub-system/inverter summary.

The wiring schedules provided show that the maximum DC voltage drop is 0.81%, which is acceptable. The six 825 kW sub-systems are connected in parallel and then transitioned into a single combined medium voltage feed. The medium voltage output underground feeder transitions into overhead conductors at the utility pole with fused cut out and surge arrestors. The feeder then continues to the next pole which hosts the customer meter prior to connecting to the gang operated airbreak (GOAB) switch at the point of delivery where the Utility performs their scope of work based on the Project interconnection agreement connecting the Project to the Point of Interconnection.

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